PREQUALIFICATION PROCEDURES AND ACCEPTANCE CRITERIA FOR ULTIMATE SPLICE RESISTANCE (FLASH) WELDED HOOPS ON ASTM A 706 REINFORCING STEEL

I. Supplier provides
   A. A request to have a Caltrans inspector reviewing the welding procedure and witnessing the welding process. Contact the appropriate Office of Structural Materials Branch Office.
   B. A signed welding procedure for each bar diameter and for each welding machine used. The weld procedure must include
      1. Welding machine's model name/number
      2. Welding machine's serial number
      3. Name and signature of Quality Manager or person responsible for the quality control of resistance welding
   C. All pertinent information needed to set up the equipment, including
      1. Program settings
      2. Percent heat input
      3. Cycle time settings
      4. Any other necessary adjustments required to perform the resistance welding process
   D. Material traceability, including heat number, lot number and mill certificates.
   E. 10 resistance welded hoops/partial hoops for each bar diameter and for each welding machine used. Minimum length required is as follows:
      1. 5 ft. (1.5m) for bar #8 (25mm) or smaller with the weld located at midpoint.
      2. 6 ft. (2.0m) for bar #9 (29mm) or larger with the weld located at midpoint)
      3. For hoops 2.5 ft (0.75m) or smaller, provide the whole hoop. This applies to bar #7 (22mm) or smaller only
   F. Ship the specimens along with the required paperwork to Caltrans' Transportation Laboratory in Sacramento:
      Division of Materials Engineering And Testing Services – MS #5
      Attention: Structural Materials Testing Branch
      5900 Folsom Boulevard
      Sacramento, CA 95819

II. Caltrans will
   A. Ensure all required documentation and samples are received.
   B. Review the technical information and corresponding samples provided.
   C. Perform mechanical testing
      1. Cyclical and fatigue test on four samples
      2. Tensile test on eight samples – samples must
         a. Exhibit a minimum ultimate tensile strength of 80 ksi; and
         b. At least five of the eight tensile specimens must fail outside the weld with visible necking
         c. Metallographic examination on two samples
   D. Upon evaluation of results from II.A to II.C above, issue an acceptance letter valid for two years, or a rejection letter.
   E. Re-testing will be allowed if the specimens fail due to a base metal defect.
   F. Update the Caltrans Flash Weld Approvals list, if applicable.

For more information, you may contact the Structural Materials Testing Branch at (916) 227-7251.